



# STIC Search Report

## EIC 1700

STIC Database Tracking Number 74624

TO: Greg Delcotto  
Location: REM 9A39  
Art Unit : 1751  
December 28, 2005

Case Serial Number: 10/800788

From: Usha Shrestha  
Location: EIC 1700  
REMSEN 4B28  
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### Search Notes



# STIC Search Results Feedback Form

**EIC17000**

Questions about the scope or the results of the search? Contact *the EIC searcher* or contact:

Kathleen Fuller, EIC 1700 Team Leader  
571/272-2505 REMSEN 4B28

## Voluntary Results Feedback Form

- I am an examiner in Workgroup:  Example: 1713  
➤ Relevant prior art **found**, search results used as follows:

- ☐ 102 rejection
- ☐ 103 rejection
- ☐ Cited as being of interest.
- ☐ Helped examiner better understand the invention.
- ☐ Helped examiner better understand the state of the art in their technology.

Types of relevant prior art found:

- ☐ Foreign Patent(s)
- ☐ Non-Patent Literature  
(journal articles, conference proceedings, new product announcements etc.)

➤ Relevant prior art **not found**:

- ☐ Results verified the lack of relevant prior art (helped determine patentability).
- ☐ Results were not useful in determining patentability or understanding the invention.

Comments:

Drop off or send completed forms to EIC1700 REMSEN 4B28

Access DB# 174624

# SEARCH REQUEST FORM

Scientific and Technical Information Center

Requester's Full Name: GREG DELCOTT Examiner #: 72268 Date: 12/17/05  
Art Unit: 1751 Phone Number: 305 711 772-1312 Serial Number: 10/800 788  
Mail Box and Bldg/Room Location: REMSEN-7A39 Results Format Preferred (circle): PAPER DISK E-MAIL

If more than one search is submitted, please prioritize searches in order of need.

\*\*\*\*\*

Please provide a detailed statement of the search topic, and describe as specifically as possible the subject matter to be searched. Include the elected species or structures, keywords, synonyms, acronyms, and registry numbers, and combine with the concept or utility of the invention. Define any terms that may have a special meaning. Give examples or relevant citations, authors, etc, if known. Please attach a copy of the cover sheet, pertinent claims, and abstract.

Title of Invention: ORGANIC PEROXYACID PRECURSORS

Inventors (please provide full names): HOBSON ET AL

Earliest Priority Filing Date: 1/6/03

*\*For Sequence Searches Only\* Please include all pertinent information (parent, child, divisional, or issued patent numbers) along with the appropriate serial number.*

\*SEE ATTACHED CLAIMS AND BIB SHEET.

SCIENTIFIC REFERENCE BR  
Sci & Tech Inf. Ctr.

DEC 19 2005

Pat. & T.M. Office

\*\*\*\*\*  
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Bib Data Sheet

CONFIRMATION NO. 9204

SERIAL NUMBER 10/800,788	FILING DATE 03/16/2004  RULE	CLASS 510	GROUP ART UNIT 1751	ATTORNEY DOCKET NO. 031004
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APPLICANTS

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 Danny O. Helton, Newberry, FL;

\*\* CONTINUING DATA \*\*\*\*\*  
 This application is a CIP of 10/752,430 01/06/2004  
 which claims benefit of 60/438,114 01/06/2003

\*\* FOREIGN APPLICATIONS \*\*\*\*\*

IF REQUIRED, FOREIGN FILING LICENSE GRANTED \*\* SMALL ENTITY \*\*  
 \*\* 06/03/2004

Foreign Priority claimed 35 USC 119 (a-d) conditions met	<input type="checkbox"/> yes <input type="checkbox"/> no <input type="checkbox"/> yes <input type="checkbox"/> no <input type="checkbox"/> Met after Allowance	STATE OR COUNTRY TX	SHEETS DRAWING 0	TOTAL CLAIMS 62	INDEPENDENT CLAIMS 3
Verified and Acknowledged	Examiner's Signature _____ Initials _____				

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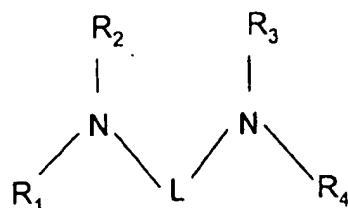
TITLE

Organic peroxyacid precursors

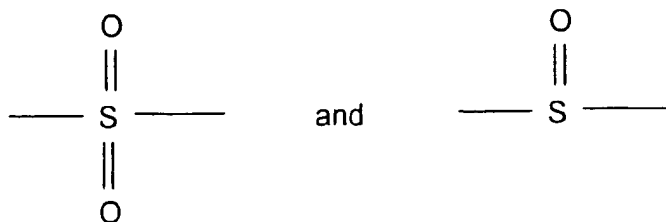
FILING FEE  RECEIVED	FEES: Authority has been given in Paper No. _____ to charge/credit DEPOSIT ACCOUNT No. _____ for following:	<input type="checkbox"/> All Fees
		<input type="checkbox"/> 1.16 Fees ( Filing )
		<input type="checkbox"/> 1.17 Fees ( Processing Ext. of time )

What is claimed is:

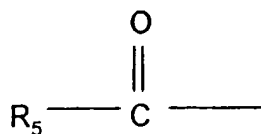
1) A composition of matter useful for forming organic peroxy acids, which comprises a polyamino compound having the structure:



5 in which L is a divalent radical that is independently selected from the group consisting of:

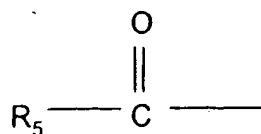


and wherein R<sub>1</sub>, R<sub>2</sub>, R<sub>3</sub>, and R<sub>4</sub> are each independently selected from the group consisting of: hydrogen, any C<sub>1</sub> to C<sub>20</sub> hydrocarbyl group, and the group:



10

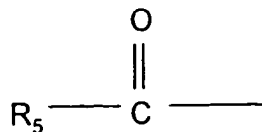
subject to the proviso that: at least one of R<sub>1</sub>, R<sub>2</sub>, R<sub>3</sub>, and R<sub>4</sub> are the group:



in which R<sub>5</sub> is in each occurrence independently hydrogen or any C<sub>1</sub> to C<sub>20</sub> hydrocarbyl group.

15

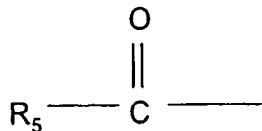
2) A composition according to claim 1 wherein one and only one of R<sub>1</sub>, R<sub>2</sub>, R<sub>3</sub>, and R<sub>4</sub> is the group:



in which R<sub>5</sub> is independently hydrogen or any C<sub>1</sub> to C<sub>20</sub> hydrocarbyl group.

5

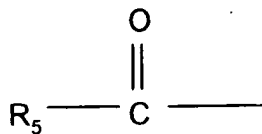
3) A composition according to claim 2 wherein at least one of the groups of R<sub>1</sub>, R<sub>2</sub>, R<sub>3</sub>, and R<sub>4</sub> which are not the group:



is hydrogen.

10

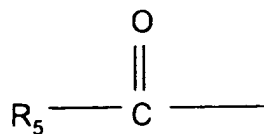
4) A composition according to claim 2 wherein at least one of the groups of R<sub>1</sub>, R<sub>2</sub>, R<sub>3</sub>, and R<sub>4</sub> which are not the group:



is independently in each occurrence any C<sub>1</sub> to C<sub>20</sub> hydrocarbyl group.

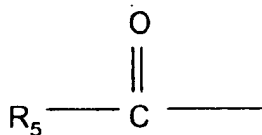
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5) A composition according to claim 1 wherein any two of R<sub>1</sub>, R<sub>2</sub>, R<sub>3</sub>, and R<sub>4</sub> are the group:



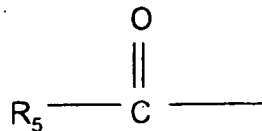
in which R<sub>5</sub> is independently in each occurrence hydrogen or any C<sub>1</sub> to C<sub>20</sub> hydrocarbyl group.

6) A composition according to claim 5 wherein at least one of the groups of R<sub>1</sub>, R<sub>2</sub>, R<sub>3</sub>, and R<sub>4</sub> which are not the group:



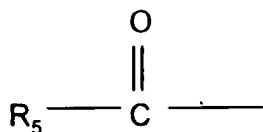
is hydrogen.

7) A composition according to claim 5 wherein at least one of the groups of R<sub>1</sub>, R<sub>2</sub>, R<sub>3</sub>, and R<sub>4</sub> which are not a group:



is independently in each occurrence any C<sub>1</sub> to C<sub>20</sub> hydrocarbyl group.

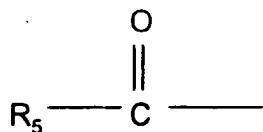
8) A composition according to claim 1 wherein any three of R<sub>1</sub>, R<sub>2</sub>, R<sub>3</sub>, and R<sub>4</sub> are the group:



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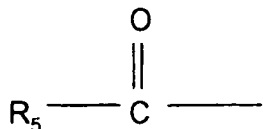
in which R<sub>5</sub> is independently in each occurrence hydrogen or any C<sub>1</sub> to C<sub>20</sub> hydrocarbyl group.

9) A composition according to claim 8 wherein the group of R<sub>1</sub>, R<sub>2</sub>, R<sub>3</sub>, and R<sub>4</sub> which is  
10 not a group:



is hydrogen.

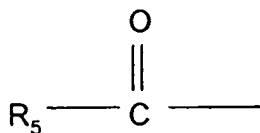
10) A composition according to claim 8 wherein the group of R<sub>1</sub>, R<sub>2</sub>, R<sub>3</sub>, and R<sub>4</sub> which is  
15 not a group:



is any C<sub>1</sub> to C<sub>20</sub> hydrocarbyl group.

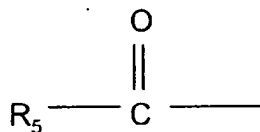


11) A composition according to claim 1 wherein all of R<sub>1</sub>, R<sub>2</sub>, R<sub>3</sub>, and R<sub>4</sub> are the group:



in which R<sub>5</sub> is independently in each occurrence hydrogen or any C<sub>1</sub> to C<sub>20</sub> hydrocarbyl group.

12) A composition according to claim 1 wherein R<sub>1</sub> and R<sub>4</sub> are represented by the group:



in which R<sub>5</sub> is independently in each occurrence hydrogen or any C<sub>1</sub> to C<sub>20</sub> hydrocarbyl group, and wherein R<sub>2</sub> and R<sub>3</sub> are each independently selected from the group consisting of: hydrogen, and any C<sub>1</sub> to C<sub>20</sub> hydrocarbyl group.

13) A composition according to claim 12 wherein R<sub>5</sub> in each occurrence is independently selected from the group consisting of: hydrogen, a methyl, an ethyl, a propyl, and a butyl group.

14) A composition according to claim 1 wherein said composition is a dry powder.

- 15) A composition of matter according to claim 14 which further comprises  
at least one solid compound which upon being contacted with water yields a peroxide  
selected from the group consisting of: hydrogen peroxide and peroxide ions.
- 5 16) A composition according to claim 15 wherein said solid compound is a compound  
selected from the group consisting of: alkali metal salts of a percarbonate, alkaline earth  
metal salts of a percarbonate, alkali metal salts of a perborate, and alkaline earth metal  
salts of a perborate.
- 10 17) A composition according to claim 15 wherein the total amount of said amino  
compound in said composition is between about 0.1 % and about 5 % by weight based on  
the total weight of said composition.
- 18) A process for providing an aqueous peroxy acid comprising the steps of:
- 15 contacting a composition according to claim 1 with an aqueous peroxide.
- 19) A process according to claim 18 wherein said peroxide is selected from the group  
consisting of: hydrogen peroxide and peroxide ions.
- 20 20) An aqueous solution comprising a composition according to claim 1.

21) An aqueous solution according to claim 20 wherein the amount of water present in said aqueous solution is any amount between about 80 % and about 99.95 % by weight based on the total weight of said aqueous solution.

5 22) A solution according to claim 20 wherein said amino compound is present in any amount between about 0.1 % and about 5 % by weight based upon the total weight of said aqueous solution.

23) A solution according to claim 20 further comprising an aqueous buffer.

10

24) A solution according to claim 20 further comprising at least one surfactant selected from the group consisting of: anionic surfactants, non-ionic surfactants, and cationic surfactants.

15 25) A solution according to claim 20 further comprising at least one sequesterant.

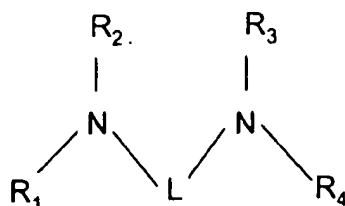
26) A composition comprising the aqueous solution of claim 20 and further comprising at least one solid compound which upon being contacted with water yields a peroxide selected from the group consisting of: hydrogen peroxide and peroxide ions.

20

27) A composition according to claim 26 wherein said solid compound is a peroxide-generating compound selected from the group consisting of: alkali metal salts of a percarbonate, alkaline earth metal salts of a percarbonate, alkali metal salts of a

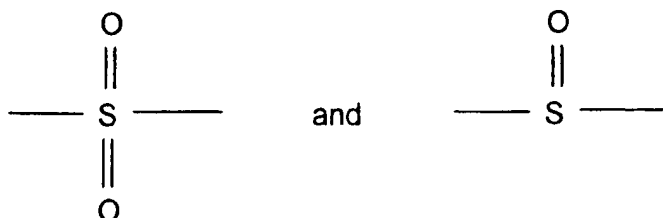
perborate, and alkaline earth metal salts of a perborate, wherein said peroxide-generating compound is present in any amount between about 0.01 % and about 5 % by weight based upon the total weight of said aqueous solution.

- 5 28) A process for disinfecting a surface comprising the steps of contacting said surface with an aqueous composition that is formed from mixing:
- a) water;
  - b) a composition of matter which comprises an amino compound having the structure:

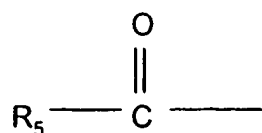


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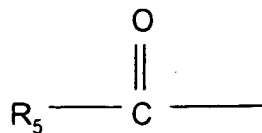
in which L is a divalent radical that is independently selected from the group consisting of:



- and wherein  $R_1$ ,  $R_2$ ,  $R_3$ , and  $R_4$  are each independently selected from the group consisting of: hydrogen, any  $C_1$  to  $C_{20}$  hydrocarbyl group, and the group:
- 15



subject to the proviso that: at least one of  $R_1$ ,  $R_2$ ,  $R_3$ , and  $R_4$  are the group:

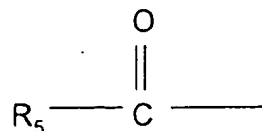


in which R<sub>5</sub> is independently in each occurrence hydrogen or any C<sub>1</sub> to C<sub>20</sub> hydrocarbyl group; and

c) a source of peroxide.

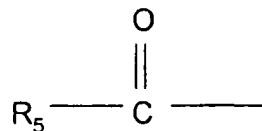
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29) A process according to claim 28 wherein one and only one of R<sub>1</sub>, R<sub>2</sub>, R<sub>3</sub>, and R<sub>4</sub> is the group:



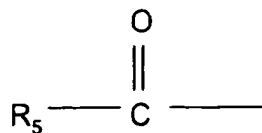
10 in which R<sub>5</sub> is independently hydrogen or any C<sub>1</sub> to C<sub>20</sub> hydrocarbyl group.

30) A process according to claim 29 wherein at least one of the groups of R<sub>1</sub>, R<sub>2</sub>, R<sub>3</sub>, and R<sub>4</sub> which are not the group:



15 is hydrogen.

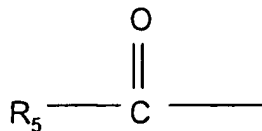
31) A process according to claim 29 wherein at least one of the groups of R<sub>1</sub>, R<sub>2</sub>, R<sub>3</sub>, and R<sub>4</sub> which are not the group:



is independently in each occurrence any C<sub>1</sub> to C<sub>20</sub> hydrocarbyl group.

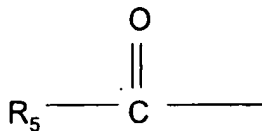
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32) A process according to claim 28 wherein any two of R<sub>1</sub>, R<sub>2</sub>, R<sub>3</sub>, and R<sub>4</sub> are the group:



10 in which R<sub>5</sub> is independently in each occurrence hydrogen or any C<sub>1</sub> to C<sub>20</sub> hydrocarbyl group.

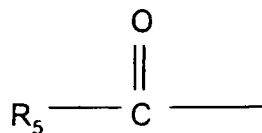
33) A process according to claim 32 wherein at least one of the groups of R<sub>1</sub>, R<sub>2</sub>, R<sub>3</sub>, and R<sub>4</sub> which is not a group:



15

is hydrogen.

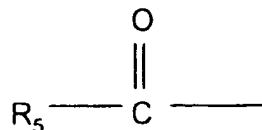
34) A process according to claim 32 wherein at least one of the groups of R<sub>1</sub>, R<sub>2</sub>, R<sub>3</sub>, and R<sub>4</sub> which is not a group:



is independently in each occurrence a C<sub>1</sub> to C<sub>20</sub> hydrocarbyl group.

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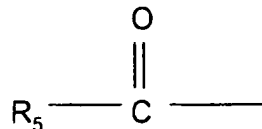
35) A process according to claim 28 wherein any three of R<sub>1</sub>, R<sub>2</sub>, R<sub>3</sub>, and R<sub>4</sub> are the group:



in which R<sub>5</sub> is independently in each occurrence hydrogen or any C<sub>1</sub> to C<sub>20</sub> hydrocarbyl group.

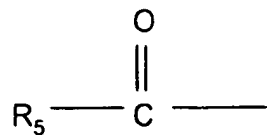
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36) A process according to claim 35 wherein the group of R<sub>1</sub>, R<sub>2</sub>, R<sub>3</sub>, and R<sub>4</sub> which is not a group:



15 is hydrogen.

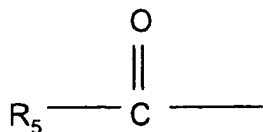
37) A process according to claim 35 wherein the group of R<sub>1</sub>, R<sub>2</sub>, R<sub>3</sub>, and R<sub>4</sub> which is not a group:



is any C<sub>1</sub> to C<sub>20</sub> hydrocarbyl group.

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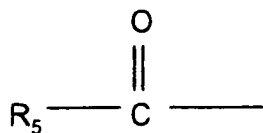
38) A process according to claim 28 wherein all of R<sub>1</sub>, R<sub>2</sub>, R<sub>3</sub>, and R<sub>4</sub> are the group:



in which R<sub>5</sub> is independently in each occurrence hydrogen or any C<sub>1</sub> to C<sub>20</sub> hydrocarbyl group.

10

39) A process according to claim 28 wherein R<sub>1</sub> and R<sub>4</sub> are the group:



in which R<sub>5</sub> is independently in each occurrence hydrogen or any C<sub>1</sub> to C<sub>20</sub> hydrocarbyl group, and wherein R<sub>2</sub> and R<sub>3</sub> are each independently selected from the group consisting of: hydrogen and any C<sub>1</sub> to C<sub>20</sub> hydrocarbyl group.

15



40) A process according to claim 39 wherein R<sub>5</sub> in each occurrence is independently selected from the group consisting of: hydrogen, a methyl, an ethyl, a propyl, and a butyl group.

5 41) A process according to claim 41 wherein said source of peroxide is a solid compound which upon being contacted with water yields a peroxide.

42) A process according to claim 41 wherein said source of peroxide is selected from the group consisting of: alkali metal salts of a percarbonate, alkaline earth metal salts of a  
10 percarbonate, alkali metal salts of a perborate, and alkaline earth metal salts of a perborate.

43) A process according to claim 41 wherein said peroxide is selected from the group consisting of: hydrogen peroxide and peroxide ions.

15

44) A process according to claim 40 wherein said aqueous composition is formed using between about 0.1 % and about 5 % by weight of said amino compound based on the total weight of said composition.

20 45) A process according to claim 40 wherein said aqueous composition contains between about 0.1 % and about 5 % by weight of water based on the total weight of said composition.

46) A process according to claim 40 wherein said aqueous composition is formed using between about 0.1 % and about 5 % by weight of said source of peroxide based on the total weight of said composition.

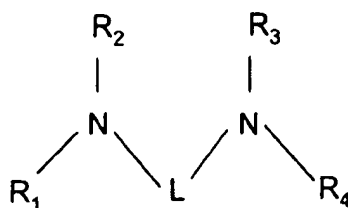
- 5 47) A process according to claim 40 wherein said surface comprises a surface selected from the group consisting of: medical instruments, medical devices, animal stalls, animal transportation equipment, a mold-infested surface, heating and air conditioning ducts, the interior surfaces of dwellings for human habitation, the interior surfaces of office buildings, open wounds and cuts, fruits, vegetables, meats, tank cars, military vehicles,  
10 aircraft, ships, boats, passenger cars, trains, and buses.

48) A process for volatilizing a peroxy acid which comprises mixing:

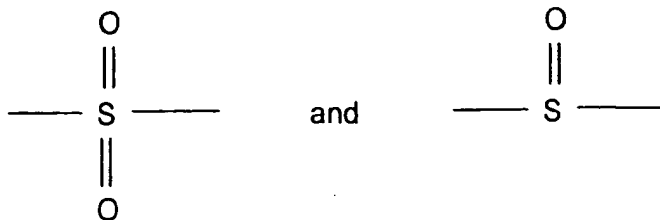
a) water;

b) a composition of matter which comprises an amino compound having the structure:

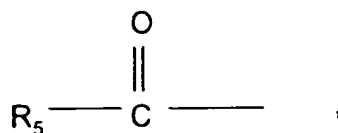
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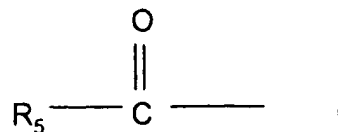
in which L is a divalent radical that is independently selected from the group consisting of:



and wherein R<sub>1</sub>, R<sub>2</sub>, R<sub>3</sub>, and R<sub>4</sub> are each independently selected from the group consisting of: hydrogen, any C<sub>1</sub> to C<sub>20</sub> hydrocarbyl group, and the group:



5 subject to the proviso that: at least one of R<sub>1</sub>, R<sub>2</sub>, R<sub>3</sub>, and R<sub>4</sub> are the group:



in which R<sub>5</sub> is in each occurrence independently hydrogen or any C<sub>1</sub> to C<sub>20</sub> hydrocarbyl group; and

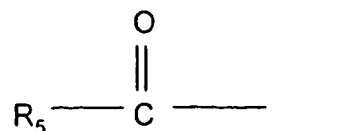
c) a source of peroxide,

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under conditions sufficient to enable evolution of vapors of peroxy acid from the aqueous solution so formed.

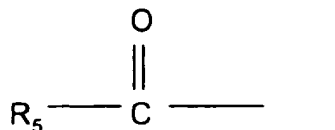
49) A process according to claim 48 wherein one and only one of R<sub>1</sub>, R<sub>2</sub>, R<sub>3</sub>, and R<sub>4</sub> is the

15 group:



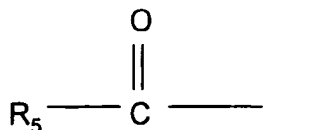
in which R<sub>5</sub> is independently hydrogen or any C<sub>1</sub> to C<sub>20</sub> hydrocarbyl group.

- 50) A process according to claim 49 wherein at least one of the groups of R<sub>1</sub>, R<sub>2</sub>, R<sub>3</sub>, and  
5 R<sub>4</sub> which are not the group:



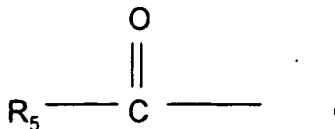
is hydrogen.

- 51) A process according to claim 49 wherein at least one of the groups of R<sub>1</sub>, R<sub>2</sub>, R<sub>3</sub>, and  
10 R<sub>4</sub> which are not the group:



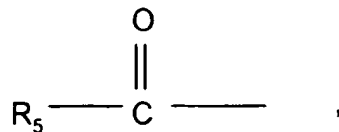
is independently in each occurrence any C<sub>1</sub> to C<sub>20</sub> hydrocarbyl group.

- 52) A process according to claim 48 wherein any two of R<sub>1</sub>, R<sub>2</sub>, R<sub>3</sub>, and R<sub>4</sub> are  
15 the group:



in which R<sub>5</sub> is independently in each occurrence hydrogen or any C<sub>1</sub> to C<sub>20</sub> hydrocarbyl  
group.

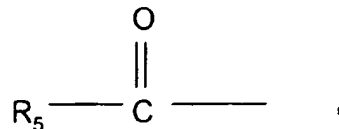
53) A process according to claim 52 wherein at least one of the groups of R<sub>1</sub>, R<sub>2</sub>, R<sub>3</sub>, and R<sub>4</sub> which is not a group:



is hydrogen.

5

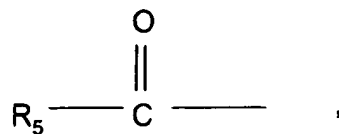
54) A process according to claim 52 wherein at least one of the groups of R<sub>1</sub>, R<sub>2</sub>, R<sub>3</sub>, and R<sub>4</sub> which is not a group:



is independently in each occurrence any C<sub>1</sub> to C<sub>20</sub> hydrocarbyl group.

10

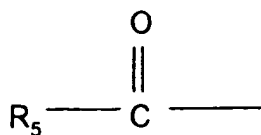
55) A process according to claim 48 wherein any three of R<sub>1</sub>, R<sub>2</sub>, R<sub>3</sub>, and R<sub>4</sub> are the group:



in which R<sub>5</sub> is independently in each occurrence hydrogen or any C<sub>1</sub> to C<sub>20</sub> hydrocarbyl

15 group.

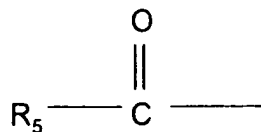
56) A process according to claim 55 wherein the group of R<sub>1</sub>, R<sub>2</sub>, R<sub>3</sub>, and R<sub>4</sub> which is not a group:



is hydrogen.

5

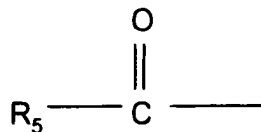
57) A process according to claim 55 wherein the group of R<sub>1</sub>, R<sub>2</sub>, R<sub>3</sub>, and R<sub>4</sub> which is not a group:



is any C<sub>1</sub> to C<sub>20</sub> hydrocarbyl group.

10

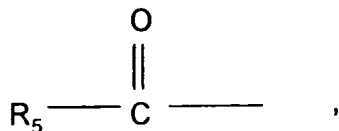
58) A process according to claim 48 wherein all of R<sub>1</sub>, R<sub>2</sub>, R<sub>3</sub>, and R<sub>4</sub> are the group:



in which R<sub>5</sub> is independently in each occurrence hydrogen or any C<sub>1</sub> to C<sub>20</sub> hydrocarbyl group.

15

59) A process according to claim 48 wherein R<sub>1</sub> and R<sub>4</sub> are the group:



in which R<sub>5</sub> is independently in each occurrence hydrogen or any C<sub>1</sub> to C<sub>20</sub> hydrocarbyl group, and wherein R<sub>2</sub> and R<sub>3</sub> are each independently selected from the group consisting  
5 of: hydrogen and any C<sub>1</sub> to C<sub>20</sub> hydrocarbyl group.

60) A process according to claim 59 wherein R<sub>5</sub> in each occurrence is independently selected from the group consisting of: hydrogen, a methyl, an ethyl, a propyl, and a butyl group.

10

61) A process according to claim 48 wherein the concentration of peroxy acid in the atmosphere at the surface of said aqueous solution is at least about 0.1 grams/ m<sup>3</sup>.

62) A process for disinfecting various microbes, including bacteria, molds, fungi and  
15 their spores which comprises contacting the vapor of peroxy acid generated according to claim 20 and in conjunction with a conventional means of vaporization selected from the group consisting of: heat, venturi nebulization, and sonication with at least one of said microbes.